Indeed, the green flash is often accompanied by strongly deformed images of the setting or the rising sun. Dr. Braak concludes that the green flash may be observed most frequently with a strongly notched limb of the sun. The occurrence of the distinct dip of the horizon at the time of observation of the green colouring of the surf agrees fairly well with these views. S. W. VISSER.

Weltevreden Observatory, Java, August 16.

Scientific Publication.

IN NATURE of September 8, p. 41, Dr. Brierley refers to a sore point of modern scientific workers, viz. the difficulties of scientific publication, and brings forward some, to use his own expression, "revolutionary" suggestions for overcoming these difficulties. I am fully convinced that Dr. Brierley's proposal to combat this evil by abandoning the practice of publishing in full works of scientific merit, deleting technical portions, and eliminating plates, and substituting for them summaries for the convenience of the "general scientific public," would prove to be a great hindrance to scientific progress if adopted.

Dr. Brierley's arguments for the adoption of this course are: (1) that the majority of papers have no permanent value in the advancement of science, and (2) that the special articles are not intelligible to workers in other branches of the same science.

It is very difficult to judge the value of scientific publications, and still more difficult to predict their possible value in the future. Mendel's paper, for instance, at the time of its publication in 1865, escaped notice, and could be termed "of no permanent value" by his contemporaries, but, as we know, it was "discovered" about twenty years later, and proved to be the foundation of the new doctrine of heredity. The truism that all scientific works, whether great or small, are the foundation on which the building of science is constructed stands good here.

It is highly important that all works should be published in full for the benefit of specialists all over the world, and not in "popular" form for the general scientific public, which will always find what it wants in general treatises and summaries. This would be impossible if, as Dr. Brierley suggests, the original memoirs were stored "in a kind of Somerset House for scientific records." Indeed, this would take us back to the Middle Ages.

The difficulties of scientific publication, however, are real, and I think that instead of *faire bonne mine à mauvais jeu*, as Dr. Brierley suggests, we should do our utmost to save the position and apply to the State for subsidy. We can surely afford to save our scientific literature, taking into account that scientific papers published in the whole country during one year are but a fraction of what is published daily in the Press in London alone. CECIL A. HOARE.

Behaviour in Lizards.

WE kept here this summer two common lizards (*Lacerta vivipara*), one a very active male, the other a female which was much less active because she was soon to give birth to a litter of young. One day I turned a batch of earwigs into the lizards' bowl, and a vigorous hunt ensued. When a lizard seizes any sort of prey it shakes it violently and repeatedly before swallowing it, thus incidentally advertising its success. At one moment it happened that the female was worrying an earwig when the male had none. He darted across and tried to snatch her earwig from her. She eluded him that time, but a few seconds later he tried again and succeeded. She made no attempt to get the earwig back; soon after he had swallowed it, however, she pounced on him and bit his elbow, tearing off a small piece of skin.

This was remarkable enough, since at all ordinary times these lizards never showed any sign of resentment—when, for example, one of them spread itself over the other in competing for a patch of sunlight. But about two minutes later something happened which surprised me still more. The female sighted an earwig sheltering half under a stone. Seeing the quick, purposeful turn of her head, the male ran up on to the stone and stood waiting. Neither moved for some seconds; then with a dart the female seized the male by the snout and held him for two or three seconds in spite of his struggles. The moment he freed himself she pounced on the earwig (which had not moved), and went through the usual actions of worrying, champing, and swallowing without further interference from the male.

On a cold day our lizards were scarcely more lively than newts. Temperature made all the difference to them. After half an hour of hot sunshine the male was as active and alert as a terrier; he would leap at flies and catch them in the air. This episode with the earwigs happened on a hot day, but even so it seemed to imply cerebral processes which one scarcely expects to find in such an animal as this small lizard. E. LEONARD GILL.

Hancock Museum, Barras Bridge,
Newcastle-upon-Tyne, September 28.

Breeding Periods of Newt and Slow-worm.

ON September 27, when examining a ditch-pool which used to produce Hydra, I found a number of larvæ of the common newt varying in size from 11 to 20 mm., the smaller two-legged, probably less than two weeks old, the larger more advanced, with well-grown hind-legs.

The pool in question was dried up during the early summer, and until half an inch of rain on July 15 and 16 thoroughly wetted the ditches no newts could have bred there, although they were breeding in a deep quarry-hole within a hundred yards. We regularly obtain newt larvæ in July for class purposes, but the end of September seems unduly late.

Three possible explanations suggest themselves:—(1) The old newts in the locality have bred twice, (2) the spring-born newts have bred in late summer, or (3) newts belonging to the place in question have been able to hold up their spawn until favourable conditions occurred, which did not happen until the third week in July.

It would be interesting to have the observations of other naturalists on late breeding.

Last year, when the weather conditions were very different, slow-worms were late in breeding, gravid females occurring in the last week in September and newly hatched young in the second week in October. RICHARD ELMHIRST.

Keppel, Millport, September 29.

The Highest Inhabited House.

I SHOULD very much doubt the accuracy of the statement in NATURE of September 15, p. 78, that a dwelling at 17,100 feet in the Andes is the highest inhabited house in the world. I feel confident that this can be claimed to be the case in the Himalayas, probably in the Karakoram or Ladak chains in the

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north of Kashmir, where there are several high passes between the altitude of 18,000 and 19,000 ft. Within my own personal knowledge, the highest inhabited house (at least for a few weeks in the summer of each year) is near the summit of the Donkia Pass in the north of Sikkim, which is claimed by the Tibetans to be in Tibet, the height of the pass, according to the trigonometrical survey, being 18,100, and per aneroid 18,400 ft., at which height the amount of oxygen in the air is only about half that at sea-level. This is a stone hovel, and is occupied by a Tibetan guard or outpost of four or five men. It would be an easy matter for the inhabitants of the Tibetan Plateau to become acclimatised to that altitude, living, as they do, at a height of between 15,000 and 16,000 ft. I wonder, however, whether the rarefication of the atmosphere adversely affects their longevity, as is known to be the case with the monks of St. Bernard in the Swiss Alps.

Plymouth. W. HARCOURT-BATH.

THE remark found fault with by Mr. Harcourt-Bath is not mine, but the author's (Prof. Bowman, p. 52 of his work on "The Andes of Southern Peru").

The surest way of breaking a supposed world record is to publish it.

No doubt Prof. Bowman was not aware of Mr. Harcourt-Bath's experience in Tibet, otherwise he would not have stated that "the loftiest habitation in the world is in Peru." Both may be stone hovels, oblong and grass-thatched (there is a good photograph on p. 48), and both houses happened to hold five people. But whilst the Tibetan custom-house officers seem to be on duty for only a few weeks in the height of the season, the Peruvian shepherd family appear to use their place as a permanent residence. "At frequent intervals during the three months of winter snow falls during the night and terrific hailstorms in the late afternoon drive both shepherds and flocks to the shelter of leeward slopes or steep canyon walls."

The altitude of the Great St. Bernard Hospice is only 8,100 feet, about the same, or even less, than that of several large towns in Mexico where longevity is common. The self-sacrificing Augustine monks, resident for a limited number of years, do suffer, not from the rarefied air, but from the severe and vile climate and unheated rooms. THE REVIEWER.

The Use of the Classics.

IN discussing "Classical and Modern Education" (NATURE, September 8, p. 64) is there not some clear separation needed between two very different purposes of training in the classics? For knowledge of human nature, for political sense, for the feeling of the life of past times and its views, translations are practically as effective as original texts. The gain from using the original language is that of the æsthetic values and training. To revile "the inadequacy of translations" solely refers to the æsthetic values, and not to the practical values for life. What has been the effect on Europe of translations from Hebrew and Greek in the Bible? Do we talk of exposing their inadequacy as a reason for ignoring them? Why have many great scholars worked for years at translations if they thought them useless?

The cant of the grammarian trying to sink the classics under the weight of his own interests in language must be ignored. Let us have every child in a secondary school familiar with the great authors, from Herodotus to Ammianus, and then let those who have ability and time for language learn, as we learn Hebrew, off a familiar translation. W. M. F. P.

Indian Land Mollusca.

IN Lt.-Col. Godwin-Austin's instructive review of the latest volume in the official "Fauna of India" (NATURE, September 22, p. 106) he rightly lays stress on the importance of preliminary work in the preparation of what are supposed to be authentic handbooks. May I state that on hearing that Mr. Gude's volume was in actual preparation I wrote offering the loan of the material in the Indian Museum, including both the whole of Nevill's type-specimens and the vast accumulation of unnamed material obtained by the Zoological Survey of India in recent years. My offer was ignored or refused, apparently because the volume had to be out by a given date. I make this statement because I find that it is commonly believed that the Zoological Survey of India, of which I have the honour to be director, is in some way responsible for the "Fauna of British India." This is not the case. N. ANNANDALE.

Auroral Display of September 28–29.

DURING the whole night of September 28 I was photographing the spectra of stars. In the early morning, at 1.25 a.m. G.M.T., I was leaving the dome to proceed to another dome, in which Mr. W. B. Rimmer was working, when I observed a bright aurora low down on the northern horizon. I called Mr. Rimmer, and we observed it together.

The streamers, of a whitish hue, were scintillating and changing their intensities very rapidly; sometimes one streamer became very brilliant and faded away, and sometimes another. The whole phenomenon from the time I first observed it lasted about twenty-five minutes. Up to the time of writing I have seen no published record of this aurora.

WILLIAM J. S. LOCKYER.

Norman Lockyer Observatory, Salcombe Hill,
Sidmouth, South Devon, October 2.

The Isotopy of the Radio-elements.

THE nucleus-model of the radio-elements proposed by Lise Meitner (*Die Naturwissenschaften*, vol. 9, pp. 423–27, 1921) permits of the division of the radioactive isotopes into three, or even four, classes.

(1) Isotopes of the first class are elements which possess only the same nuclear charge and the same arrangement of their outer electrons, *e.g.* Ra and $MsTh_1$.

(2) Isotopes of the second class have, in addition, the same nuclear mass (*i.e.* the same atomic weight) and the same total number of nuclear "building stones," *e.g.* Io and UY.

(3) Isotopes of the third class still possess the same number of each nuclear building stone, but they have a different arrangement of these in the atomic nucleus, and thus also different chances of disintegrating, *e.g.* RaD and AcB.

(4) Isotopes of the fourth class would be elements possessing the same arrangement of the nuclear building stones in the atomic nucleus, and thus the same probability of disintegration. Such elements actually exist, but we have no available means of distinguishing between them. Hence we cannot at present designate them as isotopes (*e.g.* RaG and AcD).

The branching of the uranium family at U_{II} thus ends with the end-product of the radium- and actinium-family. This common end-product of the two radio-active families is lead with the atomic weight 206.

The more detailed discussion of this subject will appear in the *Zeitschrift für physikalische Chemie*.

M. L. NEUBURGER.

Neubaugasse 79, Vienna, VII., September 10.

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